



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,883	04/26/2000	Michael Freed	99,918	1786

20306 7590 05/22/2003

MCDONNELL BOEHNEN HULBERT & BERGHOFF
300 SOUTH WACKER DRIVE
SUITE 3200
CHICAGO, IL 60606

EXAMINER

JACOBS, LASHONDA T

ART UNIT PAPER NUMBER

2157

DATE MAILED: 05/22/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/559,883

Applicant(s)

FREED ET AL.

Examiner

LaShonda T. Jacobs

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 22 and 25 are objected to because of the following informalities: the word and needs to be placed before the last limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 6-7, 9-10, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Schroeder et al (hereinafter, "Schroeder", 6,327,626).

As per claim 1, Schroeder discloses a method for changing a maximum segment size for a connection between a data source and a data receiver on a network comprising the steps of:

- receiving an announcement of a first connection between said source and said data receiver (abstract, col. 2, lines 52-62, and col. 3, lines 10-34); and
- changing said maximum segment size in said announcement of said first connection to a determined maximum segment size (abstract, col. 1, lines 23-45, lines 52-67, and col. 3, lines 10-34).

As per claim 2, Schroeder further discloses:

- recalculating a checksum of said announcement (col. 1, lines 52-57, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 3, Schroeder discloses:

- wherein said announcement comprises a first message of a data stream in said connection (col. 2, lines 63-67, and col. 3, lines 1-34).

As per claim 6, Schroeder discloses:

- wherein changing said maximum segment size comprises changing said maximum segment size in a TCP header in said announcement (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 7, Schroeder discloses:

- wherein said determined maximum segment size is preprogrammed into a database (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim 9, Schroeder discloses:

- wherein said determined maximum segment size reduces message fragmentation (col. 1, lines 38-45, and col. 3, lines 18-27).

As per claim 10, Schroeder discloses:

- wherein said determined maximum segment size avoid re-assembly of fragments (col. 1, lines 38-45, and col. 3, lines 18-27).

As per claim 25, Schroeder discloses an apparatus for reducing message fragmentation between a data source and a data receiver connected by a network comprising:

- a network device connected to the network, wherein said network device changes a maximum segment size to a determined maximum segment size used in data transmission between said data source and said data receiver (abstract, col. 1, lines 23-45, lines 52-67, and col. 3, lines 10-34); and

Art Unit: 2157

- a storage device connected to said network device for storing said determined maximum segment size for data transmitted between said data source and said data receiver; wherein said network device stores said determined maximum segment sizes in accordance to data communication between said data source and data receiver (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroeder as applied to claims **1-3, 6-7, 9-10, and 25** above, and further in view of Connery et al. (hereinafter, "Connery", 5,937,169).

As per claim **22**, Schroeder discloses a method of reducing message fragmentation between the data source and the data receiver connected by a network comprising the steps of:

- intercepting a first announcement of a first connection between said data source and said data receiver (abstract, col. 2, lines 52-62, and col. 3, lines 10-26);
- predicting a determined maximum segment size of said first connection, wherein said determined maximum segment size is placed in a signal (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23); and

Art Unit: 2157

- storing said determined maximum segment size, whereupon said determined maximum segment size results from a signal response having a maximum transmission unit that is no larger than a maximum transmission unit of said network (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

However, Schroeder does not explicitly disclose:

- sending said signal with a no-fragment option set to said data source and said data receiver.

Connery discloses sending and receiving a packet with the no-fragment option set on a network, which indicates whether the datagram is fragmented or not (col. 10, lines 65-67, col. 11, lines 1-4, and lines 28-34).

Given the teaching of Connery, it would have been obvious to one of ordinary skill in the art to modify Schroeder by setting the no-fragment option in the IP header in order to send packets on a network without having to fragment the datagram to reduce host utilization and improve performance and scalability.

As per claim **23**, Schroeder discloses:

- wherein said determined maximum segment size is iteratively predicted until a message maximum transmission unit is no larger than a maximum transmission unit of said network (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim **24**, Schroeder discloses the invention substantially as claimed.

However, Schroeder does not explicitly disclose:

- wherein said no-fragment option is set in an IP header within said signal.

Art Unit: 2157

Connery discloses sending and receiving a packet with the no-fragment option set on a network, which indicates whether the datagram is fragmented or not (col. 10, lines 65-67, col. 11, lines 1-4, and lines 28-34).

Given the teaching of Connery, it would have been obvious to one of ordinary skill in the art to modify Schroeder by setting the no-fragment option in the IP header in order to send packets on a network without having to fragment the datagram to reduce host utilization and improve performance and scalability.

6. Claims 4-5, 8, 11-21, 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroeder as applied to claims 1-3, 6-7, 9-10, and 25 above, and further in view of Liao.

As per claim 11, Schroeder discloses a method of reducing message fragmentation for a connection between a data source and a data receiver on a network comprising the steps of:

- resetting said first connection, wherein resetting said first connection initiates a second connection (at least implicitly)(col. 3, lines 10-34); and
- placing said maximum segment size into an announcement of said second connection (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

However, Schroeder does not explicitly disclose:

- receiving a first message fragment of a first connection between said data source and said data receiver; and
- storing a maximum segment size of said first message fragment of said first connection, wherein said maximum segment size exists in accordance with said first message fragment.

Liao discloses:

Art Unit: 2157

- receiving a first message fragment of a first connection between said data source and said data receiver (col. 4, lines 20-35, col. 5, lines 4-14, col. 6, lines 23-45); and
- storing a maximum segment size of said first message fragment of said first connection, wherein said maximum segment size exists in accordance with said first message fragment (col. 5, lines 62-67, and col. 6, lines 1-22).

Given the teachings of Liao, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schroeder to include a message fragment within the first data packet in order to undergo a fragmentation process to produce smaller sub-messages allowing the message to be sent to the appropriate device.

As per claim 12, further discloses:

- recalculating a checksum of said announcement of said second connection (col. 1, lines 52-57, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 13, Schroeder discloses the invention substantially as claimed.

However, Schroeder does not explicitly disclose:

- wherein said first message fragment comprises a first message of a data stream in said connection.

Liao discloses:

- wherein said first message fragment comprises a first message of a data stream in said connection (col. 4, lines 20-35, col. 5, lines 4-14, col. 6, lines 23-45).

Given the teachings of Liao, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schroeder to include a message fragment within the

Art Unit: 2157

first data packet in order to undergo a fragmentation process to produce smaller sub-messages allowing the message to be sent to the appropriate device.

As per claims 4 and 14, Schroeder discloses:

- wherein said announcement comprises a set SYN bit (col. 3, lines 10-34, and lines 55-67).

As per claims 5 and 15, Schroeder discloses:

- wherein said first connection is one of any virtual connections utilizing TCP/IP between said data source and said data receiver col. 2, lines 63-67, and col. 3, lines 1-9).

As per claims 8 and 21, Schroeder discloses:

- wherein said data source comprises customer premise equipment, and wherein data receiver comprises customer premise equipment (col. 2, lines 52-67, and col. 3, lines 45-54).

As per claim 16, Schroeder discloses:

- wherein said second connection is a connection following said first connection (col. 3, lines 10-34).

As per claim 17, Schroeder discloses:

- wherein storing said maximum segment size comprises storing said maximum segment size in a database (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim 18, Schroeder discloses:

- wherein resetting said first connection comprises closing said first connection by setting a RST bit (at least implicitly) (col. 3, lines 10-34).

Art Unit: 2157

As per claim **19**, Schroeder discloses:

- wherein resetting said first connection initiates said second connection (at least implicitly) (col. 3, lines 10-34).

As per claim **20**, discloses:

- wherein placing said maximum segment message size into said announcement of said second connection comprises placing said maximum segment message into a TCP header within said announcement of said second connection (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim **26**, Schroeder discloses the invention substantially as claimed (as discussed above) including:

- wherein said announcement comprises a first message (abstract, col. 2, lines 52-67, and col. 3, lines 1-9); and
- wherein said first message comprises a set SYN bit (col. 3, lines 10-34, and lines 55-67).

However, Schroeder does not explicitly disclose:

- said first message fragment comprises a first message of a data stream in said connection.

Liao discloses:

- said first message fragment comprises a first message of a data stream in said connection (col. 4, lines 20-35, col. 5, lines 4-14, col. 6, lines 23-45).

Given the teachings of Liao, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schroeder to include a message fragment within the

Art Unit: 2157

first data packet in order to undergo a fragmentation process to produce smaller sub-messages allowing the message to be sent to the appropriate device.

As per claim 27, Schroeder discloses:

- wherein the network device iteratively predicts said determined maximum segment size (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim 28, Schroeder discloses:

- wherein said storage device comprises a database (col. 2, lines 63-67, col. 3, lines 1-9, lines 55-67, and col. 4, lines 5-23).

As per claim 29, Schroeder discloses:

- wherein said network device comprises a gateway (router) device (col. 4, lines 44-53).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 6,298,041 to Packer

U.S. Pat. No. 6,477,143 to Ginossar

U.S. Pat. No. 6,141,550 to Ayabe et al.

Postel, J., "The TCP Maximum Segment Size and Related Topics", rfc879, dated Nov. 1983, printed from web site [Http://rfc.sunsite.dk/rfc/rfc879.html](http://rfc.sunsite.dk/rfc/rfc879.html).

Clark, D., "Window and Acknowledgment Strategy in TCP", rfc813, dated Jul. 1982, printed from web site <http://www.faqs.org/rfcs/rc813.html>.

Art Unit: 2157

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs whose telephone number is 703-305-7494.


The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-308-7562. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

LaShonda T. Jacobs
Examiner
Art Unit 2157

ltj
May 7, 2003


ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100